

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018,0084

## REMARKS/ARGUMENTS

### Errors in the disposition of claims by the Examiner

In the Office Action Summary, the Examiner has not indicated the disposition of claims 17 and 34, and has both allowed and rejected claims 28, 45. The Examiner is requested to correct the errors.

Based on the detailed action of the Examiner and also previous office actions, Applicants are concluding that the Examiner intended to allow claim 28 and 45. Applicants are also concluding that the Examiner intended to rejected claims 17, 34 for reasons similar to the rejection of claim 51.

### Rejected Claims 1-10, 17-27, 34-44, 51-54, 56-58, 60-62, and 64-69

The Examiner has rejected claims 1-10, 17-27, 34-44, 51-54, 56-58, 60-62, and 64-69 under 35 U.S.C. 102(e) as being unpatentable over Huh (US 6,584,559). Applicants traverse the rejections.

### Independent claims 1, 18, 35

Independent claims 1, 18, 35 provide a method, system, and article of manufacture for selecting a code image during a reboot routine, comprising:

- maintaining multiple code images in a memory device;
- executing a first operation routine;
- incrementing a first counter if the first operation routine succeeds;
- executing a second operation routine;
- incrementing a second counter if the second operation routine succeeds; and

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

using the first and second counters to select one of the code images from the memory device to execute.

The Examiner has rejected independent claim 1 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The claims require incrementing a second counter if the second operation routine succeeds and nowhere does the cited Huh (col. 3, lines 34-40; col. 4: line 24-30, 39-43; 44-51; col. 4, line 64 - col. 5, line 10) teach or disclose this claim requirement.

The cited Huh discusses executing a downloaded firmware when a validation scheme successfully validates the downloaded firmware. Otherwise, a permanent or most recently validated version of firmware is used for booting.

The Examiner has mentioned that the cited Huh in col. 4, lines 64 to col. 5, line 10 discusses incrementing a second counter if the second operation routine succeeds. The cited Huh in col. 5, lines 4-5 discusses setting a validation flag to the "VALID" state. Applicants submit that the setting of the validation flag to the "VALID" state as discussed in the cited Huh is different from the claim requirement of incrementing the second counter.

The cited Huh discusses that the validation flag can be in a "EMPTY", "PENDING" pending, or "VALID" state (cited Huh, col. 5: lines 15-22, col. 5: lines 30-40). Therefore the cited Huh discusses that the validation flag has states that can be set, but does not teach the claim requirement of incrementing the second counter.

The cited Huh distinguishes between a counter and a validation flag. The cited Huh discusses that the counter (reference numeral 38 of the cited Huh) is incremented (reference numeral 216 of FIG. 3 the cited Huh), whereas the validation flag (reference numeral 34 of col. 4, lines 41-42 of the cited Huh) denotes a state of a computation component. Therefore, according to the cited Huh the counter (reference numeral 38 of the cited Huh) is different from the validation flag (reference numeral 34 of the cited Huh). The Examiner has mentioned that the counter (reference numeral 38 of the cited Huh) corresponds to the first counter of the claim

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

requirements. If that is so, then should the Examiner maintain his rejection the Applicants request the Examiner to indicate where the cited Huh discloses the second counter of the claim requirements. The cited Huh repeatedly discusses that the validation flag is different from a counter (cited Huh, col. 2, lines 19-34; col. 4, lines 39-40; col 5, lines 4-6). Therefore, nowhere does the cited Huh teach or disclose the claim requirement of incrementing a second counter if the second operation routine succeeds.

Without prejudice to the Applicants position that the validation flag of the cited Huh is different from the second counter of the claim requirements, if for the sake of argument the validation flag of the cited Huh is the second counter of the claim requirements, then applicants maintain that nowhere does the cited Huh discuss the incrementing of the "EMPTY", "PENDING", or "VALID" states of the validation flag. Therefore, even if for the sake of argument the validation flag of the cited Huh corresponded to the second counter of the claim requirements, the cited Huh still does not teach or disclose the claim requirement of incrementing the second counter.

For the above reasons, claims 1, 18, 35 are patentable over the cited art.

Claims 2-10, 17, 19-27, 34, 36-44, 51-54, 56-58, 60-62, and 64-69

The Examiner has also rejected pending claims 2-10, 17, 19-27, 34, 36-44, 51-54, 56-58, 60-62, and 64-69 that depend on the pending independent claims 1, 18, and 35. Applicants submit that these claims are patentable over the cited art because they depend from claims 1, 18, and 35 which are patentable over the cited art for the reason discussed above, and because the combination of the limitations in the dependent claims 2-10, 17, 19-27, 34, 36-44, 51-54, 56-58, 60-62 and 64-69 and the base and intervening claims from which they depend provide further grounds of distinction over the cited art.

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

### Claims 3, 20, 37

Claim 3, 20, 37 depend on claims 2, 19, 36 respectively and further require that the first value is greater than zero and the second value is zero. Additionally claims 2, 19, 36 on which claims 3, 20, 37 depend require designating one code image as non-operational if the first counter is a first value and the second counter is a second value, wherein one other code image not designated as non-operational is selected to execute.

The Examiner has rejected claims 3, 20, 37 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The cited Huh (col. 4, lines 44-51) discusses setting the validation flag to "VALID". Setting the validation flag to "VALID" is different from the claim requirement where the second counter is zero. The zero value of the second counter as required by the claims is different from the "VALID" indication of the validation flag discussed in the cited Huh.

Should the Examiner maintain the rejection then the Examiner is requested to indicate where in the cited Huh the "VALID" state is specifically indicated to be zero.

For the above reasons, claims 3, 20, and 37 are patentable over the cited art.

### Claims 4, 21, 38

Claim 4, 21, 38 depend on claim 2, 19, 36 respectively and further require:  
receiving an update to the code image;  
determining whether one code image is designated as non-operational; and  
overwriting the code image designated as non-operational with the received update to the code image if one code image is designated as non-operational.

The Examiner has rejected claims 4, 21, 38 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The cited Huh (col. 4, lines 14-19) discusses whether or not to try to download new firmware again based on whether the new firmware was successfully downloaded or not.

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

Nowhere does the cited Huh teach or disclose the claim requirement of overwriting a non-operational code image with the received update. In the cited Huh, the current code image is also present and is not overwritten by the current program.

Therefore, the cited Huh does not teach or disclose the claim requirement of overwriting the code image designated as non-operational with the received update to the code image if one code image is designated as non-operational.

For the above reasons, claims 4, 21, and 38 are patentable over the cited art.

#### Claims 5, 22, 39

Claims 5, 22, 39 depend on claim 4, 21, 38 and further comprise:

determining an earliest version of the code images in the memory device; and

overwriting the determined earliest version of the code image if one code image is not designated as non-operational.

The Examiner has rejected claims 5, 22, 39 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The cited Huh (col. 4, lines 45-54) discusses invalidating firmware and executing the old or latest version of firmware. Nowhere does the cited Huh teach or disclose the claim requirement of overwriting the determined earliest version of the code image.

Additionally, the cited Huh discusses execution with respect to the latest version of firmware. The claim requires overwriting the earliest version of the code image. The earliest version of the claim requirements is different from the latest version of the cited Huh.

From the execution of different versions of firmware discussed in the cited Huh, the Examiner has concluded that the cited Huh discusses the claim requirement of overwriting the determined earliest version of the code image. Nowhere does the cited Huh teach or disclose the claim requirement of overwriting the determined earliest version of the code image and the Examiner's argument is not addressing this claim requirement.

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

For the above reasons, claims 5, 22, 39 are patentable over the cited art.

Claims 6, 23, 40

Claims 6, 23, 40 depend on claims 4, 21, 38 respectively and further require:

determining whether one code image is corrupted; and

if one code image is corrupted, overwriting the corrupted code image with the received update before determining whether one code is non-operational.

The Examiner has rejected claims 6, 23, 40 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The cited Huh (col. 4, lines 14-19) discusses whether or not to try to download new firmware again based on whether the new firmware was successfully downloaded or not.

Nowhere does the cited Huh teach or disclose the claim requirement of overwriting the corrupted code image with the received update before determining whether one code is non-operational. In the cited Huh, the current code image is also present and is not overwritten by the current program.

Therefore, the cited Huh does not teach or disclose the claim requirement of overwriting the corrupted code image with the received update before determining whether one code is non-operational.

For the above reasons, claims 6, 23, and 40 are patentable over the cited art.

Claims 8, 25, 42

Claim 8, 25, 42 depend on claims 7, 24, 41 respectively and further comprise:

incrementing the second counter if the initialization routine successfully completed;

rebooting if the initialization routine failed; and

performing another iteration of all previous steps after rebooting.

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

The Examiner has rejected claims 8, 25, 42 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The cited Huh (col. 4, lines 65- col. 5, lines 10, and fig 3) discusses initiating the boot sequence (cited Huh: Fig. 3: reference numeral 200) if the system is not up and running (cited Huh, Fig. 3, reference numeral 240). Nowhere does the cited Huh teach or suggest the claim requirement of performing another iteration of all previous steps after rebooting. In fact, the cited Huh discusses that after rebooting the steps 228 may not be performed if the counter has reached the limit in block 220 of the cited Huh (flowchart of FIG. 3 of the cited Huh). Therefore, the cited Huh discusses another iteration of some previous steps after rebooting, whereas the claims require performing another iteration of all previous steps after rebooting.

For the above reasons, claims 8, 25, 42 are patentable over the cited art.

#### Claims 9, 26, 43

Claim 9, 26, and 43 depend on claims 7, 24, 41 respectively and further comprise:

selecting one copy of the code image, wherein the executed initialization routine is a component of the selected code image, wherein the selected code image is designated as non-operational if the first counter is the first value and the second counter is the second value; and

selecting one other copy of the code image if the selected code image is designated as non-operational.

The Examiner has rejected claims 9, 26, 43 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

Nowhere does the cited Huh (col. 4, lines 44-51) teach or disclose the claim requirement that the executed initialization routine is a component of the selected code image. The cited Huh discusses computing the checksum for the firmware (cited Huh: col. 3, line 60 - col. 4, line 15). Therefore the executed routine in the cited Huh is the checksum of the cited Huh and the

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

checksum is different from the selected firmware. Therefore, nowhere does the cited Huh teach or disclose the claim requirement that the executed initialization routine is a component of the selected code image.

Should the Examiner maintain the rejection of the claims, the Examiner is requested to indicate which component of the cited Huh corresponds to the initialization routine of the claim requirements.

For the above reasons, claims 9, 26, and 43 are patentable over the cited art.

#### Claims 17, 34, 51

Claims 17, 34, 51 depend on claim 1, 18, 35 wherein one operation routine comprises a function routine to perform a device specific operation.

The Examiner has rejected claim 17, 34, 51 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The cited Huh (col. 4, line 65 - col. 5, line 3) discusses that after executing the new firmware the processor determines whether the system is up and running. Nowhere does the cited Huh teach or disclose the claim requirement of a device function routine to perform a device specific operation.

Should the Examiner maintain the rejection, the Examiner is requested to indicate which component of the cited Huh is the device function routine of the claim requirements.

For the above reasons, claims 17, 34, 51 are patentable over the cited art.

#### Claims 52, 56, 60

Claims 52, 56, 60 depend on claim 1, 18, 35 respectively, wherein executing the first and second operation routines, and incrementing the first and second counters are performed during a reboot operation, and wherein the code images include implementations of the first and second counters.



Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC92000052US1  
Firm No. 0018.0084

The Examiner has rejected claim 52, 56, 60 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

Applicants submit that nowhere does the cited Huh (col. 4, lines 24-26, col. 5, lines 58-60) teach or disclose the claim requirement that the code images include implementations of the first and second counters.

The Examiner has mentioned that col. 5, lines 58-60 of the cited Huh discusses that the code images include implementations of the first and second counters and has mentioned that col. 5, lines 58-60 of the cited Huh discusses that the old firmware can include the boot code. However, in rejecting claim 1, the Examiner has mentioned that the first counter of the claim requirements is the counter 28 of the cited Huh and the second counter of the claim requirements is the validation flag 34 of the cited Huh. The counter 28 of the cited Huh and the validation flag 34 of the cited Huh are not included in the firmware image 46 or boot code 42 in FIG. 1 of the cited Huh. In fact the validation flag 34 is shown to be outside of the boot code 42 and old firmware 46 in FIG. 1 of the cited Huh. Since the validation flag 34 is shown outside the boot code 42 in FIG. 1 of the cited Huh, even if the boot code 42 is included in the firmware image 46, the cited Huh would still not teach or disclose the claim requirement that the code image includes implementations of the first and second counters.

Therefore, nowhere does the cited Huh teach or disclose the claim requirement that the code images include implementations of the first and second counters.

For the above reasons, claims 52, 56, 60 are patentable over the cited art.

#### Claims 53, 57, 61

Claims 53, 57, and 61 depend on claims 52, 56, 60 respectively, wherein logic for executing the first and second operation routines, logic for incrementing the first and second counters, logic for using the first and second counters to select one of the code images, and the code images are implemented in firmware that can be updated.

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

The Examiner has rejected claim 53, 57, 61 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

Col. 4 lines 29-30 of the cited Huh discusses that the firmware can be updated. Nowhere does the cited Huh teach or disclose the claim requirement that the firmware implements the logic for executing the first and second operation routines, logic for incrementing the first and second counters and the logic for using the first and second counters to select one of the code images.

For the above reasons, claims 53, 57, 61 are patentable over the cited art.

#### Claims 64-66

Claims 64, 65, 66 depend on claims 1, 18, 35 respectively, wherein the second operation routine is an initialization routine that performs an initialization of the code image by initializing variables and parameters used by the code image.

The Examiner has rejected claim 64-66 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

Nowhere does the cited Huh (col. 4, lines 65 - col. 5, line 10) teach or disclose the claim requirement that the second operation routine is an initialization routine that performs an initialization of the code image. Should the Examiner maintain the rejection the Examiner is requested to indicate the following:

- (a) Which element is the second operation routine in the cited Huh?
- (b) Which operation in the cited Huh is the initialization of the code image?

For the above reasons, claims 64-66 are patentable over the cited art.

Amdt. dated March 21, 2005  
Reply to Office action of 12/21/2004

Serial No. 09/755,814  
Docket No. TUC920000052US1  
Firm No. 0018.0084

#### Claims 67-69

Claims 67, 68, 69 depend on claims 1, 18, 35 respectively, wherein the code images include a function routine to perform an operation after initialization, and wherein the function routine is also used to select one of the code images.

The Examiner has rejected claims 67-69 under U.S.C. 102(e) as being unpatentable over Huh. Applicants traverse.

The cited Huh (col. 5, lines 58-60; FIG. 3) discusses that the old firmware can include the boot code. The claims require the code images, i.e., not just the old firmware, to include the function routine. Therefore, the claims require the code images to include the function routine, whereas the cited Huh discusses that the old firmware can include the boot code. Therefore, nowhere does the cited Huh teach or disclose the claim requirement that the code images include a function routine.

For the above reasons, claims 67-69 are patentable over the cited art

#### Conclusion

For all the above reasons, Applicant submits that the pending claims are patentable over the art of record. Applicants have indicated appropriate fees. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney/agent invites the Examiner to contact him at (310) 557-2292 if the Examiner believes such contact would advance the prosecution of the case.

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